

WE CLAIM

1. A filter panel designed to be inserted into and retained on a suspension ceiling comprising a filter media retained in a filter frame, the filter frame having an inner face and an outer face; the filter media located adjacent the filter frame inner face, the outer face having a flexible perimeter flange projecting outwardly from an upper portion of the filter frame outer face, which flexible perimeter flange can bend inwardly so as to be substantially flush with said frame outer face and can extend outward.

2. The filter panel of claim 1 wherein the flexible flange is substantially continuously provided along the entire perimeter of the filter frame and extends outward in a direction substantially perpendicular to the filter frame outer face.

3. The filter panel of claim 2 wherein the flexible flange is a thermoplastic material.

4. The filter panel of claim 3 wherein the flexible flange is integrally molded with the filter frame.

5. The filter panel of claim 2 wherein the flexible flange is located at a top edge of the filter frame.

6. The filter panel of claim 4 wherein the filter frame and flexible flange are formed of the same thermoplastic polymer.

7. The filter panel of claim 4 wherein the flexible flange is formed of a thermoplastic elastic material.

8. The filter panel of claim 4 wherein the flexible flange has a high friction surface, over at least a portion of the flange.

9. The filter panel of claim 4 where the top of the filter frame has a compressible material on at least a portion to form a seal.

10. The filter panel of claim 5 wherein the filter frame top edge further has a support member projecting inwardly from the filter frame inner face.

11. The filter panel of claim 10 wherein the support member is substantially coplanar with the flexible flange when it is fully extended horizontally.

10 12. The filter panel of claim 2 wherein the flexible flange contains a sealing element on at least one surface.

13. The filter panel of claim 12 wherein the flange sealing element is a fibrous filtering material.

15 14. The filter panel of claim 2 wherein the filter is attached to the inner surface of the filter frame.

20 15. The filter panel of claim 14 wherein the filter media is a fibrous particle filter media.

16. The filter panel of claim 15 wherein the filter media is pleated.

25 17. The filter panel of claim 14 wherein the filter media is adhesively attached to the filter frame.

18. The filter panel of claim 1 wherein the filter media is removably attached to the filter frame.

30 19. The filter panel of claim 1 wherein the flexible flange is adhesively attached to the filter frame sidewall.

20. The filter panel of claim 2 wherein the filter frame includes one or more rib elements.

21. The filter panel of claim 20 wherein at least one rib element extends
5 substantially along the entire perimeter of the filter frame.

22. The filter panel of claim 2 wherein the flexible flange is located below a top edge of the filter frame.

10 23. The filter panel of claim 22 wherein the top edge of the filter frame comprises a discrete removable extension element.

24. The filter panel of claim 2 wherein the filter frame has an attachment means for accepting a diffuser panel at a lower edge region of the filter frame.

15 25. A ceiling filtration system comprising suspension rails having substantially horizontal element, a movable air delivery plenum or diffuser resting on the suspension rail horizontal elements and a filter panel inserted into and retained between the suspension rails and the air delivery plenum or diffuser, the filter panel is designed to be
20 inserted into and retained on a suspension ceiling and comprises a filter media retained in a filter frame, the filter frame having an inner face and an outer face; the filter media located adjacent the filter frame inner face, the outer face having a flexible perimeter flange projecting outwardly from an uppermost portion of the filter frame outer face, which flexible perimeter flange can bend inwardly so as to be substantially flush with said
25 frame outer face and can extend outward.

26. The filter panel of claim 25 wherein the flexible flange is substantially continuously provided along the entire perimeter of the filter frame and extends outward in a direction substantially perpendicular to the filter frame outer face.

30 27. The filter panel of claim 26 wherein the flexible flange is a thermoplastic material.

28. The filter panel of claim 27 wherein the flexible flange is integrally molded with the filter frame.

5 29. The filter panel of claim 26 wherein the flexible flange is located at a top edge of the filter frame.

30. The filter panel of claim 28 wherein the filter frame and flexible flange are formed of the same thermoplastic polymer.

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31. The filter panel of claim 28 wherein the flexible flange is formed of a thermoplastic elastic material.

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32. The filter panel of claim 28 wherein the flexible flange has a high friction surface, over at least a portion of the flange.

33. The filter panel of claim 28 where the top of the filter frame has a compressible material on at least a portion to form a seal.

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34. The filter panel of claim 29 wherein the filter frame top edge further has a support member projecting inwardly from the filter frame inner face.

35. The filter panel of claim 34 wherein the support member is substantially coplanar with the flexible flange when it is fully extended horizontally.

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36. The filter panel of claim 26 wherein the flexible flange contains a sealing element on at least one surface.

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37. The filter panel of claim 36 wherein the flange sealing element is a fibrous filtering material.

38. The filter panel of claim 26 wherein the filter is attached to the inner surface of the filter frame.

5 39. The filter panel of claim 38 wherein the filter media is a fibrous particle filter media.

40. The filter panel of claim 39 wherein the filter media is pleated.

10 41. The filter panel of claim 38 wherein the filter media is adhesively attached to the filter frame.

42. The filter panel of claim 26 wherein the filter frame includes one or more rib elements.

15 43. The filter panel of claim 42 wherein at least one rib element extends substantially along the entire perimeter of the filter frame.

20 44. The filter panel of claim 26 wherein the flexible flange is located below a top edge of the filter frame.

45. The filter panel of claim 44 wherein the top edge of the filter frame comprises a discrete removable extension element.

25 46. The filter panel of claim 26 wherein the filter frame has an attachment means for accepting a diffuser panel at a lower edge region of the filter frame.